Wisconsin
Department of Commerce

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Environmental & Regulatory Services Division
Bureau of Petroleum Products and Tanks
201 West Washington Avenue
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# Wisconsin COMM 10 Material Approval

Equipment: APT P-xxx-D, P-xxx-SC, V-xxx-D, V-xxx-SC, XP-xxx-D, XP-xxx-SC, XV-xxx-D Pressure and Vent Non-Metallic Underground Flexible Piping

Manufacturer: Franklin Fueling Systems
3760 Marsh Rd.
Madison, WI 53718

Expiration of Approval: December 31, 2009

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## SCOPE OF EVALUATION

The APT P-series, V-series, XP-series, and XV-series pressure and vent nonmetallic underground piping, manufactured by Franklin Fueling Systems, were evaluated for use as piping for underground storage tank systems in accordance with **s. Comm 10.51 (2)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

## DESCRIPTION AND USE

APT P-xxx-D is a nonmetallic, single wall piping that consists of four layers: an inner tube of black Nylon 12, a single aluminized mylar permeation barrier layer, a nylon braid reinforcement layer, and a blue outer cover of medium-density polyethylene. APT P-xxx-SC includes the same four layers and four additional layers: a clear mylar layer over the previous blue polyethylene, a second blue polyethylene cover layer that is fabricated to produce an interstitial space for secondary containment, a single aluminized mylar permeation barrier layer, and a blue outer cover of medium-density polyethylene.

APT XP-xxx-D is a nonmetallic, single wall piping that consists of four layers: an inner tube of black Nylon 12, a single aluminized mylar permeation barrier layer, a nylon braid reinforcement layer, and a blue outer cover of Nylon 12. APT P-xxx-SC includes the same four layers and four additional layers: a clear mylar layer over the previous blue Nylon 12, a second blue Nylon 12 cover layer that is fabricated to produce an interstitial space for secondary containment, a single aluminized mylar permeation barrier layer, and a blue outer cover of Nylon 12.

The APT V-xxx-D, XV-xxx-D, and V-xxx-SC flexible vent pipe are used to vent vapors from underground storage tanks. They are used to contain and transfer the vapors and condensate from both petroleum and alcohol-based fuels. They are not intended for pressurized service or for transfer of liquids.

## TESTS AND RESULTS

APT P-series pressure piping and V-series vent piping were found to comply with the October 30, 1995 UL 971 requirements. P-series and V-series piping are suitable for use in the distribution of petroleum products, alcohols, and alcohol-gasoline mixtures. APT XP-series pressure and XV-series vent piping were found to comply with the January 2, 2004 UL 971 requirements. XP-series and XV-series piping are suitable for use in the distribution of petroleum products, alcohols, and alcohol-gasoline mixtures including high blend, concentrated motor vehicle, aviation and marine fuels. The current XP-series and XV-series listings are available at www.ul.com under file number MH17457.

## LIMITATIONS / CONDITIONS OF APPROVAL

- Critical performance parameters for the **APT P-xxx-D** flexible primary piping:

| Product Code | Pipe Size (in.) | Minimum Bend Radius (in.)[1] | Bulk Modulus[2] (psi) |
|---|---|---|---|
| P-050-D | ½ | 36 | 8254 |
| P-075-D | ¾ | 36 | 6465 |
| P-100-D | 1 | 36 | 5725 |
| P-150-D | 1 ½ | 36 | 5830 |
| P-175-D | 1 ¾ | 36 | 4834 |
| P-200-D | 2 | 36 | 5159 |
| P-250-D | 2 1/2 | 42 | 4871 |

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Corrected value from 3rd party test.

- Critical performance parameters for the **APT P-xxx-SC** flexible primary and secondary containment (co-axial) piping:

| Product Code[1] | Pipe Size (in.) | Minimum Bend Radius (in.)[2] | Bulk Modulus[3] (psi) |
|---|---|---|---|
| P-050-SC | ½ | 36 | 8759 |
| P-075-SC | ¾ | 36 | 10086 |
| P-100-SC | 1 | 36 | 7963 |
| P-150-SC | 1 ½ | 36 | 6654 |
| P-175-SC | 1 ¾ | 36 | 7744 |
| P-200-SC | 2 | 36 | 5476 |
| P-250-SC | 2 1/2 | 42 | 4357 |

1: All products have integral secondary containment.
2: Terminating fitting bend radius is the same as minimum bend radius.
3: Corrected value from 3rd party test.

- Critical performance parameters for the **APT V-xxx-D** and **V-xxx-SC** vent piping:

| Product Code | Pipe Size (in.) | Minimum Bend Radius (in.)[2] | Bulk Modulus[3] (psi) |
|---|---|---|---|
| V-200-D | 2 | 36 | NA |
| V-200-SC[1] | 2 | 36 | NA |

1: This product has integral secondary containment.
2: Terminating fitting bend radius is the same as minimum bend radius.
3: Vent containment piping is not for pressurized service, a bulk modulus value is not necessary for this application.

- Critical performance parameters for the **APT XP-xxx-D** flexible primary piping:

| Product Code | Pipe Size (in.) | Minimum Bend Radius (in.)[1] | Bulk Modulus[2] (psi) |
|---|---|---|---|
| XP-100-D | 1 | 36 | TBD |
| XP-150-D | 1 ½ | 36 | TBD |
| XP-175-D | 1 ¾ | 36 | TBD |
| XP-200-D | 2 | 36 | TBD |

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Corrected value from 3rd party test.

- Critical performance parameters for the **APT XP-xxx-SC** flexible primary and secondary containment (co-axial) piping:

| Product Code[1] | Pipe Size (in.) | Minimum Bend Radius (in.)[2] | Bulk Modulus[3] (psi) |
|---|---|---|---|
| XP-100-SC | 1 | 36 | TBD |
| XP-150-SC | 1 ½ | 36 | TBD |
| XP-175-SC | 1 ¾ | 36 | TBD |
| XP-200-SC | 2 | 36 | TBD |

1: All products have integral secondary containment.
2: Terminating fitting bend radius is the same as minimum bend radius.
3: Corrected value from 3rd party test.

- Critical performance parameters for the **APT XV-xxx-D** vent piping:

| Product Code | Pipe Size (in.) | Minimum Bend Radius (in.)[1] | Bulk Modulus[2] (psi) |
|---|---|---|---|
| XV-200-D | 2 | 36 | NA |

1: Terminating fitting bend radius is the same as minimum bend radius.
2: Vent containment piping is not for pressurized service, a bulk modulus value is not necessary for this application.

- APT P-series, V-series, XP-series, and XV-series piping are approved as meeting the design and construction standards for underground piping as specified in **s. Comm 10.51 (2)**.

- APT P-series, V-series, XP-series, and XV-series piping are approved for installation without the flex connectors specified in **s. Comm 10.51 (2)(e)**.

- APT P-series, V-series, XP-series, and XV-series piping are approved for underground (buried) installations only. A maximum of 3 inches of low melting point materials may be exposed at the point where the piping enters a sump.

- Installation, use, and maintenance of all products shall be in accordance with the manufacturer's recommendations and this approval. In the event of conflicts, the stricter requirement shall govern.

- Leak detection for the piping system shall be provided in accordance with **s. Comm 10.60 (2)**. The specific leak detection system must be shown on the plans that are submitted for review in accordance with **s. Comm 10.10**. Automatic line leak detectors and line tightness testing methods must be specifically approved for use with flexible piping in accordance with **s. Comm 10.125**. (Note: Evaluation of these leak detection methods with the standard EPA protocol does not demonstrate acceptability for use with flexible piping.)

- The APT P-series, V-series, and XP-series secondary containment (-SC) jacket are approved for use as a secondary barrier for interstitial monitoring systems in compliance with **s. Comm 10.61 (7).**

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

## DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Reviewed by: _____

Greg Bareta, P. E.
Engineering Consultant
Bureau of Petroleum Products and Tanks

Approved by: _____ Date: _____